

ROBERT BAKER

Position in Firm : Principal Consultant and Toxicologist
Date of Birth : 21 December 1943
Nationality : Australian
Experience : 27 years

Education and Professional Qualifications

B.Sc. (Hons) in Microbiology, University of Western Australia (1966)
Ph.D., University of Western Australia (1971)
Distinction in "Management of Dangerous Materials" course, Department of Safety Science, University of NSW.

Australia and New Zealand Environmental Mutagen Society (President 1987 - 1988)

Australasian Society of Clinical and Experimental Pharmacology and Toxicology
Australian Society of Cosmetic Chemists
Australian Institute Of Biology
Royal Australian Chemical Institute
U.K. Environmental Mutagen Society
U.S. Environmental Mutagen Society
Registration as a Genetic Toxicologist (UK)
Nominated Australian Expert, Alternative Methods, OECD Test Guidelines Program

Experience Records

Robert's key project management experience includes:

- environmental and occupational toxicology in Thailand. The project entailed training, review of research and provision of advice on rapid response to environmental and occupational health emergencies, on behalf of the Department of Medical Sciences, Ministry of Public Health. Training in risk assessment, chemical and biological monitoring were provided for staff of the Division of Toxicology;
- project management of the health and ecological risk assessment of the Homebush Bay/Newington site, on behalf of the NSW Property Services Group and the Department of Defence. The assessment covered 16 domains to be considered for possible future residential land-use, public open space or commercial/sports use. Contaminants included those in soils, sediments, groundwater and surface water. Technical input focused on human health risk characterisation and recommendations on remediation objectives for the site;
- feasibility study for new facilities at the Royal North Shore Hospital, Sydney. The project involved evaluating options for medical research at the hospital, interviews with all research groups, participation in a strategic planning workshop, and review of the resulting planning brief.
- toxicology reports, material safety data sheet preparation, advice on label warning statements, as well as complete regulatory affairs submissions on new industrial chemicals, pesticides and agricultural chemicals for commercial clients;
- investigating toxicological effects of environmental chemical substances, with high level scientific qualifications (PhD, and UK Registration as Genetic Toxicologist) and experience in assessment of harm due to hazardous substances and radioactive materials;

ROBERT BAKER

Other experience includes:

- occupational and environmental health areas: chemical hazard assessment, through various expert committees at state and national levels; development of requirements for short-term test data for regulations since 1984; preparation of numerous reviews on chemical hazards for National Health and Medical Research Council (NHMRC); advice on requirements for toxicology tests under NICNAS;
 - studies on health risk to workers, hazard assessment of metals, pesticides, polycyclic aromatic hydrocarbons and complex mixtures such as petroleum oils, and environmental impact of chlorpyrifos use;
 - reviews on intractable wastes, sewage sludge and other hazardous substances or materials, including substances occurring in water and sediments as a result of effluent and other discharges, effects on aquatic organism and ecosystems, and relevant input into standards development (eg., water quality guidelines);
 - health risk assessment of contaminated industrial sites in Sydney region;
 - investigations on environmental and health hazards of tick dip sites;
 - research on environmental consequences of use of blast furnace and steel making slag for landfill;
 - service on a variety of expert committees including NHMRC committee dealing with environmental toxicology, and 4 national committees;
 - expert evidence to Commonwealth Government enquires and to a Royal Commission as special scientific adviser; and
 - teaching in occupational health and safety, School of Civil and Mining Engineering, University of Sydney; lectures in environmental toxicology, Department of Safety Science, University of NSW; lectures and practical sessions in biochemical toxicology, University of Technology, Sydney.
-

Positions Held

| | |
|-------------|---|
| 1995 - 1997 | Director, Chem Affairs Pty Limited |
| 1993 - 1996 | Principal Consultant, ICF Pty Ltd/AXIS Environmental/Hyder Environmental |
| 1991 - 1993 | Director, Centre for Environmental Toxicology, NSW Environment Protection Authority |
| 1989 - 1991 | Principal Research Scientist, Toxicology Unit, Worksafe Australia |
| 1987 - 1990 | Senior Lecturer, Toxicology Unit, Worksafe Australia |
| 1983 - 1987 | Senior Lecturer, School of Public Health and Tropical Medicine (SPH&TM) |
| 1977 - 1982 | Lecturer in Public Health Biology and Head, SPH&TM |
| 1975 - 1977 | Acting Head of Section, SPH&TM |
| 1973 - 1975 | Scientist, Radiation Biology Section, SPH&TM |
| 1972 - 1973 | Registrar in Pathology (non-medical), Princess Margaret Hospital, WA |
| 1970 - 1971 | Research Fellow, Imperial Cancer Research Fund, London |

Scientific Background

Since 1977, involved with investigating toxic effects of environmental and industrial chemicals, pesticides, cosmetics, food additives, etc. Experienced in assessment of potential adverse effects of chemicals in regard to environmental toxicology, general toxicology and chemical carcinogenesis. Experienced in human health risk assessment. Specific knowledge of genotoxic and nongenotoxic mechanisms of carcinogenesis including DNA-reactive (eg., mutagenic nitrosamines, PAHs, aflatoxins etc), mitogenic (eg., peroxisome proliferation with phthalate esters), cytotoxic (eg., thyroid toxicity with amitrol) and receptor-mediated mechanisms (eg., Ah or oestrogen receptor binding of TCDD). Invited on 3 occasions to participate in international collaborative research projects in the field of genetic toxicology: 1978, 1982

ROBERT BAKER

and 1983. More than 23 research projects have been completed, many in collaboration with other groups including the Ludwig Institute for Cancer Research, University of Sydney; Department of Genetics, University of Sydney; Cancer Institute, Melbourne; Ultrasonics Institute, NSW Cancer Council Special Unit and the US National Institute of Environmental Health Sciences, the MRC Toxicology Unit (UK), University of Surrey (UK) and the International Program on Chemical Safety (IPCS - Geneva).

Experience in Risk Assessment

Actively involved in hazard evaluation and risk assessment in the areas of public and environmental health since 1977. Within the EPA, assisted the Contaminated Sites Section in reviewing human risk associated with various projects. These have included the ICI Environmental Survey Stage II, Homebush Bay soil criteria, Dapto Nursing Homes health risk assessment. IPCS proposals on Intergovernmental Mechanisms for Chemical Risk Assessment and Management reviewed for the EPA. Contributed to 1992 Workshop on contaminated cattle tick dip sites. Since 1993, consultant advice in East Perth Gasworks, Inveresk Railyards, Homebush Bay/Newington, Marybyrnong, Honeysuckle, Kingswood and Kotara risk assessments.

Expertise in Regulatory Toxicology

Experienced at both State and Federal levels. Responsible for formulating requirements for short-term test data for agricultural and veterinary chemicals embodied in regulations since 1984. Assisted in developing requirements for toxicology tests under National Industrial Chemicals Notification and Assessment Scheme. Contributed to review of chemicals including food sweeteners, fluoridation of public water supplies, chlorinated byproducts in drinking water, sunscreens, pesticides such as amitrol and 2,4-dichlorophenoxyacetic acid. Australian Expert (Alternative Methods) in the OECD Test Guidelines Program.

Consultancies and Industry Liaison

Undertook laboratory studies for and provided advice to: Analchem, Analytical Research Pharmaceuticals Pty Ltd, Associated Pulp and Paper Mills Ltd, Austep Pty Ltd Australian Pharmaceutical Manufacturers' Association, Australian Wine Research Institute, Cambridge Laboratories, Cancer Institute, Melbourne, Commonwealth Serum Laboratories, CSIRO Division of Forest Research, CSIRO Mineral Research Laboratories, CSIRO Division of Chemical and Wood Technology, Food Standards Committee NHMRC, Forest Research Institute, New Zealand Forest Service, Givaudan Pty Ltd, ICI Australia Operations Pty Ltd, Johnson and Johnson Pty Ltd, Kanematsu Institute, Memtec Pty Ltd, National Chemical Products Pty Ltd, HB Love Industries, NSW State Cancer Council, Pharmaceutical Consulting Services, Pozzolan EMI Ltd, Reckitts Toiletries International, Richardson and Vicks Pty Ltd, Roche Research Unit of Marine Pharmacology, Royal North Shore Hospital, South Australian Health Commission, Specialty Practice Committee for Oncology, Society of Hospital Pharmacists of Australia.

Undertook consultancy for Commonwealth Department of Human Services and Health, dealing with risk of bladder cancer associated with chlorinated by-products in drinking water.

Communication and Community Liaison

Experienced in liaison between Government agencies, academic institutions, the industry sector and the general public. Successfully negotiated with World Health Organisation, the Commonwealth Department of Health and the University of Sydney in a training course on chemical safety. Have co-ordinated a research program involving a NSW Government agency (GrainCorp), a CSIRO Laboratory, scientists in Victoria and Worksafe Australia. Considerable local, national and international conference participation over the past 14 years. Invited to contribute to symposium at ICEM international conference, Melbourne, 1993. Media contacts have included television, newspapers and radio journalists.

ROBERT BAKER

Facilitation of public consultation on the risk assessment of chemicals in sewage discharges was undertaken for the Sydney Water Corporation. Assisted with a Community Review Group, undertaking a technical review of the risk assessment methodology and workplans. Interviews were conducted with members of the Review Group, and technical concepts and reports were required to be translated into an accessible language and format, both written and oral, for use in communications, including a summary of the risk assessment methodology, for public release.

Submissions or Evidence Provided to the Following

Royal Commission on the Use and Effects of Chemical Agents Australian Personnel in Vietnam; House of Representatives Committee on the Environment and Conservation, Hazardous Chemicals Enquiry.

Membership of Expert Committees

| | |
|-------------|---|
| 1991 - 1992 | Hazardous Chemicals Advisory Committee of the EPA; Departmental Nominee on Minister of Agriculture's Advisory Committee on Agricultural, Veterinary and Allied Chemicals; Departmental Nominee on NSW Poisons Advisory Committee; Advisory Committee, School of Biological and Biomedical Sciences, UTS |
| 1990 | Expert Group on Synthetic Mineral Fibres, Worksafe Australia |
| 1989 | Working Party on Contents of Schedules, Chemicals Standing Committee, Worksafe Australia |
| 1989 - 1993 | NSW Department of Health Pesticides Committee |
| 1987 - 1993 | Carcinogenesis Committee, NSW State Cancer Council |
| 1986 - 1994 | Committee on Toxicity, NHMRC |
| 1984 - 1986 | Special Working Parties on Dichlorvos and Amitrol, for the Commonwealth Department of Health |
| 1984 | Toxicology Review Committee, NHMRC |
| 1979 - 1983 | Panel 9 - Health and Safety in Welding, Australian Welding Research Association |
| 1979 - 1981 | Carcinogenic Substances Committee, NHMRC; Committee on Carcinogenesis, NSW State Cancer Council |

Publications

Have published over 60 peer-reviewed papers in authoritative scientific journals, approximately 50 technical reports on laboratory toxicology tests, more than 30 conference presentations and numerous internal and committee reports. Publications have dealt with topics such as toxicity of toxaphene and dichlorvos; skin cancer induction by polycyclic aromatic compounds (PACs); genetic damage in skin due to PACs; skin cancer and genetic damage due to tumour promoters; toxicology of food additives, cosmetic substances, sunscreens, pesticides, welding fumes, pharmaceuticals, air filter samples, solvents, tar residues, dyes and fly ash.